AIR QUALITY MONITORING

622621121058: VIJAY.P

Phase 2 submission

Introduction:

sensor for our Air Quality Monitoring Project. When we will connect it to Arduino then it will sense the gases, and we will get the Pollution level in PPM (parts per million). MQ135 gas sensor gives the output in form of voltage levels and we need to convert it into PPM. So for converting the output in PPM, here we have used a library for MQ135 sensor, it is explained in detail in “Code Explanation” section below.

Sensor was giving us value of 90 when there was no gas near it and the safe level of air quality is 350 PPM and it should not exceed 1000 PPM. When it exceeds the limit of 1000 PPM, then it starts cause Headaches, sleepiness and stagnant, stale, stuffy air and if exceeds beyond 2000 PPM then it can cause increased heart rate and many other diseases.

When the value will be less than 1000 PPM, then the LCD and webpage will display “Fresh Air”. Whenever the value will increase 1000 PPM, then the buzzer will start beeping and the LCD and webpage will display “Poor Air, Open Windows”. If it will increase 2000 then the buzzer will keep beeping and the LCD and webpage will display “Danger! Move to fresh Air”.Skip to main content

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IoT based Air Pollution Monitoring System using Arduino

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In this project we are going to make an IoT Based Air Pollution Monitoring System in which we will monitor the Air Quality over a webserver using internet and will trigger a alarm when the air quality goes down beyond a certain level, means when there are sufficient amount of harmful gases are present in the air like CO2, smoke, alcohol, benzene and NH3. It will show the air quality in PPM on the LCD and as well as on webpage so that we can monitor it very easily.

Previously we have built the LPG detector using MQ6 sensor, Smoke detector using MQ2 sensor, and Air Quality Analyser but this time we have used MQ135 sensor as the air quality sensor which is the best choice for monitoring Air Quality as it can detects most harmful gases and can measure their amount accurately. In this IOT project, you can monitor the pollution level from anywhere using your computer or mobile. We can install this system anywhere and can also trigger some device when pollution goes beyond some level, like we can switch on the Exhaust fan or can send alert SMS/mail to the user.

Required Components:

MQ135 Gas sensor

Arduino Uno

Wi-Fi module ESP8266

16X2 LCD

Breadboard

10K potentiometer

1K ohm resistors

220 ohm resistor

Buzzer

You can buy all the above components from here.

Circuit Diagram and Explanation:

First of all we will connect the ESP8266 with the Arduino. ESP8266 runs on 3.3V and if you will give it 5V from the Arduino then it won’t work properly and it may get damage. Connect the VCC and the CH\_PD to the 3.3V pin of Arduino. The RX pin of ESP8266 works on 3.3V and it will not communicate with the Arduino when we will connect it directly to the Arduino. So, we will have to make a voltage divider for it which will convert the 5V into 3.3V. This can be done by connecting three resistors in series like we did in the circuit. Connect the TX pin of the ESP8266 to the pin 10 of the Arduino and the RX pin of the esp8266 to the pin 9 of Arduino through the resistors.

ESP8266 Wi-Fi module gives your projects access to Wi-Fi or internet. It is a very cheap device and make your projects very powerful. It can communicate with any microcontroller and it is the most leading devices in the IOT platform. Learn more about using ESP8266 with Arduino here.

Then we will connect the MQ135 sensor with the Arduino. Connect the VCC and the ground pin of the sensor to the 5V and ground of the Arduino and the Analog pin of sensor to the A0 of the Arduino.

Connect a buzzer to the pin 8 of the Arduino which will start to beep when the condition becomes true.

In last, we will connect LCD with the Arduino. The connections of the LCD are as follows

Connect pin 1 (VEE) to the ground.

Connect pin 2 (VDD or VCC) to the 5V.

Connect pin 3 (V0) to the middle pin of the 10K potentiometer and connect the other two ends of the potentiometer to the VCC and the GND. The potentiometer is used to control the screen contrast of the LCD. Potentiometer of values other than 10K will work too.

Connect pin 4 (RS) to the pin 12 of the Arduino.

Connect pin 5 (Read/Write) to the ground of Arduino. This pin is not often used so we will connect it to the ground.

Connect pin 6 (E) to the pin 11 of the Arduino. The RS and E pin are the control pins which are used to send data and characters.

The following four pins are data pins which are used to communicate with the Arduino.

Connect pin 11 (D4) to pin 5 of Arduino.

Connect pin 12 (D5) to pin 4 of Arduino.

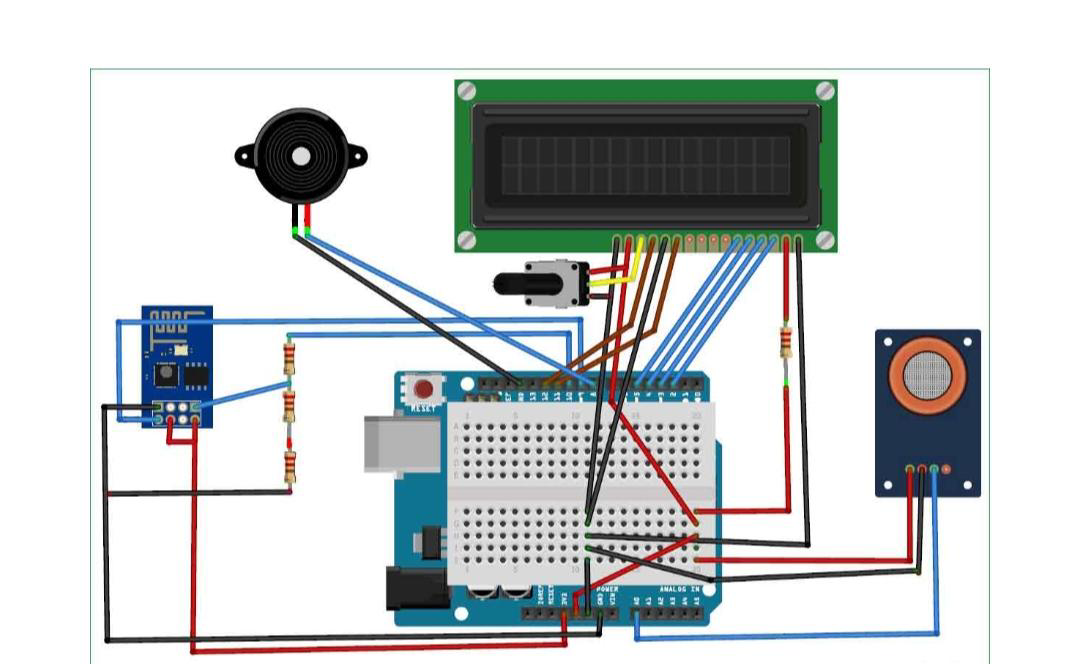
Connect pin 13 (D6) to pin 3 of Arduino.

Connect pin 14 (D7) to pin 2 of Arduino.

Connect pin 15 to the VCC through the 220 ohm resistor. The resistor will be used to set the back light brightness. Larger values will make the back light much more darker.

Connect pin 16 to the Ground.

Iot-air-quality-monitoring-system-using-arduino-circuit



Working Explanation:

The MQ135 sensor can sense NH3, NOx, alcohol, Benzene, smoke, CO2 and some other gases, so it is perfect gas sensor for our Air Quality Monitoring Project. When we will connect it to Arduino then it will sense the gases, and we will get the Pollution level in PPM (parts per million). MQ135 gas sensor gives the output in form of voltage levels and we need to convert it into PPM. So for converting the output in PPM, here we have used a library for MQ135 sensor, it is explained in detail in “Code Explanation” section below.

Sensor was giving us value of 90 when there was no gas near it and the safe level of air quality is 350 PPM and it should not exceed 1000 PPM. When it exceeds the limit of 1000 PPM, then it starts cause Headaches, sleepiness and stagnant, stale, stuffy air and if exceeds beyond 2000 PPM then it can cause increased heart rate and many other diseases.

When the value will be less than 1000 PPM, then the LCD and webpage will display “Fresh Air”. Whenever the value will increase 1000 PPM, then the buzzer will start beeping and the LCD and webpage will display “Poor Air, Open Windows”. If it will increase 2000 then the buzzer will keep beeping and the LCD and webpage will display “Danger! Move to fresh Air”.

Code Explanation:

Before beginning the coding for this project, we need to first Calibrate the MQ135 Gas sensor. There are lots of calculations involved in converting the output of sensor into PPM value, we have done this calculation before in our previous Smoke Detector project. But here we are using the Library for MQ135, you can download and install this MQ135 library from here: https://github.com/GeorgK/MQ135.

Using this library you can directly get the PPM values, by just using the below two lines:

MQ135 gasSensor = MQ135(A0);

float air\_quality = gasSensor.getPPM();

But before that we need to calibrate the MQ135 sensor, for calibrating the sensor upload the below given code and let it run for 12 to 24 hours and then get the RZERO value.

#include "MQ135.h"

void setup (){

Serial.begin (9600);

}

void loop() {

MQ135 gasSensor = MQ135(A0); // Attach sensor to pin A0

float rzero = gasSensor.getRZero();

Serial.println (rzero);

delay(1000);

}

After getting the RZERO value. Put the RZERO value in the library file you downloaded "MQ135.h": #define RZERO 494.63

Now we can begin the actual code for our Air quality monitoring project.

In the code, first of all we have defined the libraries and the variables for the Gas sensor and the LCD. By using the Software Serial Library, we can make any digital pin as TX and RX pin. In this code, we have made Pin 9 as the RX pin and the pin 10 as the TX pin for the ESP8266. Then we have included the library for the LCD and have defined the pins for the same. We have also defined two more variables: one for the sensor analog pin and other for storing air\_quality value.

#include <SoftwareSerial.h>

#define DEBUG true

SoftwareSerial esp8266(9,10);

#include <LiquidCrystal.h>

LiquidCrystal lcd(12,11, 5, 4, 3, 2);

const int sensorPin= 0;

int air\_quality;

Then we will declare the pin 8 as the output pin where we have connected the buzzer. lcd.begin(16,2) command will start the LCD to receive data and then we will set the cursor to first line and will print the ‘circuitdigest’. Then we will set the cursor on the second line and will print ‘Sensor Warming’.

pinMode(8, OUTPUT);

lcd.begin(16,2);

lcd.setCursor (0,0);

lcd.print ("circuitdigest ");

lcd.setCursor (0,1);

lcd.print ("Sensor Warming ");

delay(1000);

Then we will set the baud rate for the serial communication. Different ESP’s have different baud rates so write it according to your ESP’s baud rate. Then we will send the commands to set the ESP to communicate with the Arduino and show the IP address on the serial monitor.

Serial.begin(115200);

esp8266.begin(115200);

sendData("AT+RST\r\n",2000,DEBUG);

sendData("AT+CWMODE=2\r\n",1000,DEBUG);

sendData("AT+CIFSR\r\n",1000,DEBUG);

sendData("AT+CIPMUair\_quality=1\r\n",1000,DEBUG);

sendData("AT+CIPSERVER=1,80\r\n",1000,DEBUG);

pinMode(sensorPin, INPUT);

lcd.clear();

For printing the output on the webpage in web browser, we will have to use HTML programming. So, we have created a string named webpage and stored the output in it. We are subtracting 48 from the output because the read() function returns the ASCII decimal value and the first decimal number which is 0 starts at 48.

if(esp8266.available())

{

if(esp8266.find("+IPD,"))

{

delay(1000);

int connectionId = esp8266.read()-48;

String webpage = "<h1>IOT Air Pollution Monitoring System</h1>";

webpage += "<p><h2>";

webpage+= " Air Quality is ";

webpage+= air\_quality;

webpage+=" PPM";

webpage += "<p>";

The following code will call a function named sendData and will send the data & message strings to the webpage to show.

sendData(cipSend,1000,DEBUG);

sendData(webpage,1000,DEBUG);

cipSend = "AT+CIPSEND=";

cipSend += connectionId;

cipSend += ",";

cipSend +=webpage.length();

cipSend +="\r\n";

The following code will print the data on the LCD. We have applied various conditions for checking air quality, and LCD will print the messages according to conditions and buzzer will also beep if the pollution goes beyond 1000 PPM.

lcd.setCursor (0, 0);

lcd.print ("Air Quality is ");

lcd.print (air\_quality);

lcd.print (" PPM ");

lcd.setCursor (0,1);

if (air\_quality<=1000)

{

lcd.print("Fresh Air");

digitalWrite(8, LOW);

Finally the below function will send and show the data on the webpage. The data we stored in string named ‘webpage’ will be saved in string named ‘command’. The ESP will then read the character one by one from the ‘command’ and will print it on the webpage.

String sendData(String command, const int timeout, boolean debug)

{

String response = "";

esp8266.print(command); // send the read character to the esp8266

long int time = millis();

while( (time+timeout) > millis())

{

while(esp8266.available())

{

// The esp has data so display its output to the serial window

char c = esp8266.read(); // read the next character.

response+=c;

}

}

if(debug)

{

Serial.print(response);

}

return response;

}

Testing and Output of the Project:

Before uploading the code, make sure that you are connected to the Wi-Fi of your ESP8266 device. After uploading, open the serial monitor and it will show the IP address like shown below.

IOT-getting-localserver-IP

Type this IP address in your browser, it will show you the output as shown below. You will have to refresh the page again if you want to see the current Air Quality Value in PPM.

Iot-air-quality-monitoring-system-output

We have setup a local server to demonstrate its working, you can check the Video below. But to monitor the air quality from anywhere in the world, you need to forward the port 80 (used for HTTP or internet) to your local or private IP address (192.168\*) of you device. After port forwarding all the incoming connections will be forwarded to this local address and you can open above shown webpage by just entering the public IP address of your internet from anywhere. You can forward the port by logging into your router (192.168.1.1) and find the option to setup the port forwarding.

Code

#include "MQ135.h"

#include <SoftwareSerial.h>

#define DEBUG true

SoftwareSerial esp8266(9,10); // This makes pin 9 of Arduino as RX pin and pin 10 of Arduino as the TX pin

const int sensorPin= 0;

int air\_quality;

#include <LiquidCrystal.h>

LiquidCrystal lcd(12,11, 5, 4, 3, 2);

void setup() {

pinMode(8, OUTPUT);

lcd.begin(16,2);

lcd.setCursor (0,0);

lcd.print ("circuitdigest ");

lcd.setCursor (0,1);

lcd.print ("Sensor Warming ");

delay(1000);

Serial.begin(115200);

esp8266.begin(115200); // your esp's baud rate might be different

sendData("AT+RST\r\n",2000,DEBUG); // reset module

sendData("AT+CWMODE=2\r\n",1000,DEBUG); // configure as access point

sendData("AT+CIFSR\r\n",1000,DEBUG); // get ip address

sendData("AT+CIPMUair\_quality=1\r\n",1000,DEBUG); // configure for multiple connections

sendData("AT+CIPSERVER=1,80\r\n",1000,DEBUG); // turn on server on port 80

pinMode(sensorPin, INPUT); //Gas sensor will be an input to the arduino

lcd.clear();

}

void loop() {

MQ135 gasSensor = MQ135(A0);

float air\_quality = gasSensor.getPPM();

if(esp8266.available()) // check if the esp is sending a message

{

if(esp8266.find("+IPD,"))

{

delay(1000);

int connectionId = esp8266.read()-48; /\* We are subtracting 48 from the output because the read() function returns the ASCII decimal value and the first decimal number which is 0 starts at 48\*/

String webpage = "<h1>IOT Air Pollution Monitoring System</h1>";

webpage += "<p><h2>";

webpage+= " Air Quality is ";

webpage+= air\_quality;

webpage+=" PPM";

webpage += "<p>";

if (air\_quality<=1000)

{

webpage+= "Fresh Air";

}

else if(air\_quality<=2000 && air\_quality>=1000)

{

webpage+= "Poor Air";

}

else if (air\_quality>=2000 )

{

webpage+= "Danger! Move to Fresh Air";

}

webpage += "</h2></p></body>";

String cipSend = "AT+CIPSEND=";

cipSend += connectionId;

cipSend += ",";

cipSend +=webpage.length();

cipSend +="\r\n";

sendData(cipSend,1000,DEBUG);

sendData(webpage,1000,DEBUG);

cipSend = "AT+CIPSEND=";

cipSend += connectionId;

cipSend += ",";

cipSend +=webpage.length();

cipSend +="\r\n";

String closeCommand = "AT+CIPCLOSE=";

closeCommand+=connectionId; // append connection id

closeCommand+="\r\n";

sendData(closeCommand,3000,DEBUG);

}

}

lcd.setCursor (0, 0);

lcd.print ("Air Quality is ");

lcd.print (air\_quality);

lcd.print (" PPM ");

lcd.setCursor (0,1);

if (air\_quality<=1000)

{

lcd.print("Fresh Air");

digitalWrite(8, LOW);

}

else if( air\_quality>=1000 && air\_quality<=2000 )

{

lcd.print("Poor Air, Open Windows");

digitalWrite(8, HIGH );

}

else if (air\_quality>=2000 )

{

lcd.print("Danger! Move to Fresh Air");

digitalWrite(8, HIGH); // turn the LED on

}

lcd.scrollDisplayLeft();

delay(1000);

}

String sendData(String command, const int timeout, boolean debug)

{

String response = "";

esp8266.print(command); // send the read character to the esp8266

long int time = millis();

while( (time+timeout) > millis())

{

while(esp8266.available())

{

// The esp has data so display its output to the serial window

char c = esp8266.read(); // read the next character.

response+=c;

}

}

if(debug)

{

Serial.print(response);

}

return response;

}

Video

Tags

Comments

Submitted by Jyoti Ramdas Mate on Wed, 12/28/2016 - 14:58

Permalink

mini project onday to day life use

I am in 3rd year e&tc engineering and I want to do mini project on IOT but which is different and we can use it day to day life

Submitted by jay patel on Wed, 01/25/2017 - 09:10

Permalink

plz tell me in detail how to

plz tell me in detail how to calibrate mq135 gas sensor

Submitted by Maddy on Sat, 03/04/2017 - 18:05

In reply to plz tell me in detail how to by jay patelPermalink

Check this project to find

Check this project to find Calibration details: Smoke Detector using MQ2 Gas Sensor and Arduino

Submitted by yash on Tue, 01/31/2017 - 11:51

Permalink

why in this code mq 135 gas

why in this code mq 135 gas sensor is show error?

it is showing comipling error.

Submitted by zeba on Thu, 10/19/2017 - 19:22

In reply to why in this code mq 135 gas by yashPermalink

Library for MQ135, you can

Library for MQ135, you can download and install this MQ135 library from here: https://github.com/GeorgK/MQ135.

Submitted by navakarthiga r… on Thu, 03/02/2017 - 14:30

Permalink

air pollution monitoring system using arduino

Haii sir/mam ,i am doing 3rd year engg .i need a clear explanation and video for connecting the equipments of this air pollution monitoring system for my mini project contest.plz tell me in detail as soon as possible.

Submitted by pranjal choudhury on Sun, 05/14/2017 - 19:46

In reply to air pollution monitoring system using arduino by navakarthiga r…Permalink

I can give you the whole

I can give you the whole project which I made it for my project.

Submitted by magnim on Sat, 12/02/2017 - 04:48

In reply to I can give you the whole by pranjal choudhuryPermalink

help

please can you give me help on the code ? i mean if it is possible to use different lcd and how to make it work?

Submitted by magnim on Wed, 12/13/2017 - 08:07

In reply to I can give you the whole by pranjal choudhuryPermalink

hi

hello i am doing this your project as my final year project please can you give me the whole project? need your help please

Submitted by rojan roshani on Tue, 01/23/2018 - 00:09

In reply to I can give you the whole by pranjal choudhuryPermalink

IOT air pollution monitoring system using arduino

hi im a final year electrical enginnering student and i saw your comment that you said you have all the project ready and done. i would be pleased if you can send me the project in details.

thank you

Submitted by Jayesh on Thu, 02/01/2018 - 21:06

In reply to I can give you the whole by pranjal choudhuryPermalink

Hello Pranjal,

Hello Pranjal,

Can you please give me the whole project? I need it for a subject at Uni and would be really helpful if I can use your project as an example.

Thank you.

Submitted by ritu on Sun, 03/04/2018 - 22:39

In reply to I can give you the whole by pranjal choudhuryPermalink

can you send me the source

can you send me the source code and how to ASSemble it I m finding difficulties

Submitted by arpit on Sun, 04/01/2018 - 13:26

In reply to I can give you the whole by pranjal choudhuryPermalink

Can you help me with the WiFi

Can you help me with the WiFi module?

I'm unable to get anything from the ESP8266 on the serial monitor

Submitted by sayed on Sun, 01/13/2019 - 20:35

In reply to I can give you the whole by pranjal choudhuryPermalink

Please provide me the whole project

Hi sir,

Please kindly provide me the whole project. it is required for my final year project.My Email ID is sayyedmusher91@gmail.com

Thanks in Advance,

Sayed

Submitted by vinothini on Fri, 03/10/2017 - 10:25

Permalink

error rectifying

hi sir/mam...i am doing electronics and communication 3rd year...i need a clear arduino code in this project......because u given code is incorrect...so it is had error for arduino software....pls give a correct code...thanking you sir/mam...

Submitted by Manthan on Sat, 03/25/2017 - 15:30

Permalink

air pollution monitoring system

I will run all code but, show the error for particular term of 'gasSensor'

Submitted by mitali on Mon, 04/03/2017 - 11:30

Permalink

i need a flowchart of iot

i need a flowchart of iot based air quality monitoring project. please help me.

Submitted by Abhijeet Singh on Fri, 04/28/2017 - 17:04

Permalink

Not Working

Respected sir,

I am a graduated student. I went through your project and assemble the parts as you have shown. But it is not working. I wanted to contact you but didn't found any way to contact. Please reply ASAP.

Thank You.

Submitted by Manthan on Sat, 04/29/2017 - 23:35

Permalink

IOT based air pollution monitoring using arduino

please, give correct code for esp8266 module particular in this project. i have successfully run full code,but show the error for wifi module is given to the below. give reply fastly.

deprecated conversion from string constant to 'char\*' [-Wwrite-strings]

if(esp8266.find("+IPD,"))

Submitted by Roop on Mon, 05/08/2017 - 14:38

Permalink

calibrating

While calibrating the sensor(MQ-135) the serial output is " inf " (after 6 hours of leaving it as it is) can someone please tell me what could be the problem.

regards

Roop

Submitted by albert sancho on Wed, 05/10/2017 - 16:03

Permalink

ESP8266

In this project, what is esp8266 for?

Submitted by Rounak Priyam … on Fri, 06/09/2017 - 20:19

Permalink

Sir can u please upload

Sir can u please upload detailed pictures of the project.and the programme is also not working correctly so can you help me out with this...

it would be great if you respond..

thank you sir

Submitted by anand on Sat, 08/19/2017 - 21:53

Permalink

we dont know wifi module connection

while uploading the esp8266 code getting error

Submitted by Aswinth Raj on Sun, 08/20/2017 - 18:40

In reply to we dont know wifi module connection by anandPermalink

What error is it?

What error is it?

Are you able to upload other programs successfully? If no, then the problem is most likely with your Connections

Check your connections again and let us know what kind of error you get

Submitted by Hari on Mon, 08/21/2017 - 16:02

Permalink

Connecting ESP to WiFi

Hi,

How you made your ESP 8266 to connect to WIFI and what is the AT command used in the code to make a connection to wifi network.

Submitted by Jaskunwar Singh on Fri, 09/01/2017 - 14:49

Permalink

Query regarding connection on internet

how to forward the port 80 (used for HTTP or the internet) to your local or private IP address and what is it?

Submitted by Aswinth Raj on Mon, 09/04/2017 - 10:45

In reply to Query regarding connection on internet by Jaskunwar SinghPermalink

Port forwarding

Port forwarding is the Technique through which we can make this webpage load globally. After port forwarding you can use your public IP to access this webpage from anywhere in the world.

you can learn how to enable port forwarding on your router here

https://circuitdigest.com/microcontroller-projects/iot-based-voice-controlled-home-automation-using-esp8266

(Scroll down till you find the heading "Port Forwarding your ESP8266 IP:")

Submitted by irfanzainur on Sun, 09/10/2017 - 10:16

Permalink

Hi,

Hi,

How you made your ESP 8266 to connect to WIFI and what is the AT command used in the code to make a connection to wifi network.

Submitted by hepshiba beula on Sun, 10/15/2017 - 21:11

Permalink

reply

my code has been uploaded successfully but i didn't get anything on the serial monitor.could you help me??

Submitted by Aswinth Raj on Mon, 10/16/2017 - 17:18

In reply to reply by hepshiba beulaPermalink

Is your LCD working?

Is your LCD working?

Check you baud rate

Submitted by hepshiba beula on Tue, 10/17/2017 - 17:05

Permalink

reply

i didn't use the lcd part sir

Submitted by maginhawa on Wed, 11/08/2017 - 09:42

Permalink

Hello there. We would like to

Hello there. We would like to use this as our project for this coming finals. We would like to ask for your help regarding this. Do you have any videos on how you connected everything (wires and configurations)? If none, maybe at least the step by step procedures?

Thank you so much. Your help would be so much appreciated

Submitted by AISHA on Tue, 11/14/2017 - 11:32

In reply to Hello there. We would like to by maginhawaPermalink

You can use the circuit

You can use the circuit diagram to make the connections. If you have any problem in getting it to work use the comments or forums. This is how all the website

Permalink

Whenever I put some smoke (Cigarette and Candle Smoke)

The Reading is under 0.(something) PPM what the problem? but without the smoke the Reading is between 450 and shows F

Permalink

The Reading I Get in the lcd

The Reading I Get in the lcd whenever I put some smoke(cigarette and candle smokes) below the gas sensor is 0. something PPM is something wrong in my gas sensor? but in normal cases the reading i get in the lcd is ranges from 440 PPM to 450 PPM. Whats wrong?

Submitted by chichay on Wed, 11/29/2017 - 11:29

Permalink

The whole device already

The whole device already works: lcd, buzzer, gas sensor already calibrated, the webpage. However, I have the same problem with what maginhawa is experiencing. I placed the gas sensor near a burnt paper. The LCD shows a result of 0 and above. I expect it to be higher than 500, but it turns out to be the opposite. What seems to be the problem?

Thank you for answering. :)

Submitted by AISHA on Mon, 12/04/2017 - 19:45

In reply to The whole device already by chichayPermalink

Are you sure the sensor is

Are you sure the sensor is calibrated. Just try a simple program to read the value of Gas sensor and check how it is responding to a burnt paper.

Submitted by chichay on Fri, 12/08/2017 - 11:08

In reply to Are you sure the sensor is by AISHAPermalink

Yes, it has been calibrated

Yes, it has been calibrated for more than 12 hours for two time already (because we thought there is something wrong with the first calibration, but there is none). The Rzero I got was 70.14

Submitted by chichay on Fri, 12/08/2017 - 11:30

In reply to Are you sure the sensor is by AISHAPermalink

Do I have to change anything

Do I have to change anything else aside from the RZERO in the library (MQ135.h)?

Submitted by beauty on Thu, 12/07/2017 - 15:02

Permalink

pls i need a complete project

pls i need a complete project on air and sound pollution monitoring

am presently working on it but the wifi module is not communicating with any website

what could be the problem?

Submitted by chichay on Thu, 01/11/2018 - 23:28

Permalink

The whole project is working

The whole project is working now. We just had a wrong connection in our gas sensors A0. But the only problem we always have is the wifi module. It shows a signal (telling that the module still works) but won't transmit any data. It does not even respond to the at commands even if we changed the baud rates already. The browser would always say that "192.168.4.1 refuses to connect"

Please help us. And thank you so much for answering all of my questions.

Submitted by Aswinth Raj on Mon, 01/15/2018 - 11:16

In reply to The whole project is working by chichayPermalink

Its hard to give you a

Its hard to give you a solution as the problem could be due to various reasons. But one thing that you must do is try a simpe project like this

https://circuitdigest.com/microcontroller-projects/getting-started-with…

To make sure you understand if the ESP8266 works as expected. Then you would be able to debug the problem yourself.

Submitted by chichay on Wed, 01/17/2018 - 10:42

In reply to Its hard to give you a by Aswinth RajPermalink

Thank you very much for your

Thank you very much for your replies and help. :)

Submitted by Jim on Sun, 01/14/2018 - 03:01

Permalink

Great project Muhammad,

Great project Muhammad, However as far as I can see there is a difference between your description and the diagram. On the diagram "RX" goes through one "resistor" to pin 9 where as in the description you say "resistors". In the diagram is shows the RX connected to ground through two resistors, where as in the description you make no mention of that. Can you please clarify. Thanks.

Submitted by Aswinth Raj on Thu, 01/18/2018 - 12:49

In reply to Great project Muhammad, by JimPermalink

Arduino works on 5V and ESP

Arduino works on 5V and ESP on 3.3V. So when the Tx pin of Arduino is connected to Rx pin of ESP8266, the 5V signal from arduino might affect he ESP8266 module.

So muhammad has used a resistor (potential divider) network to convert 5V from arduino to 3.3V. However these resistors are not mandatory as I have tested them to work even without them. To be on the safe side you can use these resistors (one from arduino to esp (R1) and the other from ESP to ground (R2)). The value of R1 and R2 could be 1K and 2K respectivly

You can ignore the two resistors shown in the circuit diagram.

Submitted by arpit on Mon, 01/22/2018 - 22:30

Permalink

Complete Project

Has anyone made the complete project. Kindly help me with the code. Need urgent help.

Submitted by AISHA on Tue, 01/23/2018 - 16:02

In reply to Complete Project by arpitPermalink

Hi arpit,

Hi arpit,

The complete code is given above already by the author.

Submitted by chiichay on Wed, 01/24/2018 - 10:06

Permalink

I hope you know the answer to

I hope you know the answer to this. Our serial monitor shows that our wifi module replies with the AT commands. But when i try to access its ip address, instead of showing the content we coded in the IDE, our webpage is blank or says 192.168.4.1 didnt send any data

Submitted by Aswinth Raj on Wed, 01/24/2018 - 18:59

In reply to I hope you know the answer to by chiichayPermalink

Is your computer and ESP

Is your computer and ESP connected to same router?

Make sure your ESP is connected to your modem

Submitted by chichay on Thu, 01/25/2018 - 22:17

In reply to Is your computer and ESP by Aswinth RajPermalink

Thanks for replying. Well, we

Thanks for replying. Well, we didn't connect our module to any router. We are just trying to get data from it's IP Address so that when i open my web browser and typed the module's IP Address, the data would be shown. Just like in the video

Submitted by Anusha on Mon, 01/29/2018 - 07:08

Permalink

Technologies

What are the technologies used and how many modules used in this project

Submitted by anu on Mon, 01/29/2018 - 14:16

Permalink

modules

what are the modules in this project

Submitted by AISHA on Tue, 01/30/2018 - 11:36

In reply to modules by anuPermalink

4 Modules are used they are

4 Modules are used they are

MQ135 Gas sensor

Arduino Uno

Wi-Fi module ESP8266

16X2 LCD

Its explained in the materials required section also take a look at the circuit diagram

Submitted by Anu on Wed, 01/31/2018 - 18:50

Permalink

What are the technologies

What are the technologies used in this project

Submitted by Boobs on Wed, 02/07/2018 - 20:26

Permalink

Did this project really works

Did this project really works? Can anyone try this and tell me if its really works?

Submitted by priya on Thu, 02/15/2018 - 10:24

Permalink

Connecting ESP8266 to WiFi

How to connect ESP8266 to WiFi ?

I have uploaded the code and getting an error like this:

//warning: espcomm\_sync failed

error: espcomm\_open failed

error: espcomm\_upload\_mem failed

error: espcomm\_upload\_mem failed//

Can you please help me in resolving the error?

Submitted by sushil on Thu, 02/22/2018 - 15:19

Permalink

data are displayed on lcd.but

data are displayed on lcd.but webpage refused to open as i have used my laptop hotspot is any problem with hotspot ?

Submitted by Sonali Lokare on Mon, 03/12/2018 - 12:21

Permalink

air pollution detector

How we find the value of rzero.....& where this rzero value is define... plz help us

Submitted by Sonali Lokare on Tue, 03/13/2018 - 21:27

Permalink

air pollution detectorair

Hello sir, we are third year student we want an info about how sensor is calibrated and how we find the value of rzero & where it is placed in program.

Submitted by Sankaranarayanan.S on Tue, 03/13/2018 - 21:42

Permalink

Hello Sir,I am studying. 3 rd

Hello Sir,I am studying. 3 rd CSE.I wish to do this. Project as my mini project. So please give me more details about this project and also provide a full video how to connect this full circuit immediately

Submitted by Delroy D'Souza on Fri, 03/30/2018 - 09:29

Permalink

Esp8266 Problem solved

For those getting Esp8266 error change this line

sendData("AT+CIPMUair\_quality=1\r\n",1000,DEBUG); // configure for multiple connections

To

sendData("AT+CIPMUX=1\r\n",1000,DEBUG); // configure for multiple connections

You only need to change AT+CIPMUX and remove the air\_quality. The page will be displayed 100% in your browser

Submitted by arpit on Sat, 03/31/2018 - 17:15

Permalink

ESP8266

There are gibberish values being shown in the serial monitor and although it gives the IP address to open the webpage, but in the end it shows "error" instead of "ok". Can someone help with this.

Submitted by Delroy D'Souza on Wed, 04/11/2018 - 20:22

In reply to ESP8266 by arpitPermalink

Change this line sendData("AT

Change this line sendData("AT+CIPMUair\_quality=1\r\n",1000,DEBUG); // configure for multiple connections

To this

sendData("AT+CIPMUX=1\r\n",1000,DEBUG); // configure for multiple connections

Submitted by Chairul Arifin on Wed, 05/30/2018 - 05:18

Permalink

ask

hello, i want to ask. are i need to use XAMPP to activate apache to use web server? what is required also php file for the "webpage" and "command" ? or i just need to follow the step above? if the file is needed where can i get it?

thank you

Submitted by Anish Shetty on Tue, 07/03/2018 - 16:43

Permalink

error in serial monitor

hi, the code given above shows no error but in serial monitor i am getting a error once the ip address is shown i am getting a error. even the ip address 192.168.4.1 is not opening and am not getting any readings too. may i get some solution for the same i need to know if i have missed some steps because i have followed all the steps. reply as soon as possible i have a deadline to submit this project. thank you

Submitted by anne on Sat, 07/07/2018 - 11:54

Permalink

Hi, I'm planning to make this

Hi, I'm planning to make this project. Can someone help me if i use a gsm module instead of wifi module so the user can be notified through sms. Thank you so much!

Submitted by Ankita on Thu, 01/03/2019 - 18:14

Permalink

esp8266

how can i get esp8266 port

Submitted by Ankita on Wed, 01/09/2019 - 16:35

Permalink

esp8266

when i connect esp8266 with the arduino i can't find port for esp8266. and espcomm upload mem failed error occurs while uploding the code.

Submitted by Aswinth Raj on Wed, 01/09/2019 - 17:47

In reply to esp8266 by AnkitaPermalink

Might be a driver problem.

Might be a driver problem. Did ou check your device manager?

Submitted by Ankit Kelwadkar on Thu, 01/17/2019 - 17:11

Permalink

sir how to put rzero value in

sir how to put rzero value in main code and what can write in place of #define Debug true

Submitted by Aswinth Raj on Mon, 01/21/2019 - 12:15

In reply to sir how to put rzero value in by Ankit KelwadkarPermalink

What do you mean by rzero

What do you mean by rzero

Submitted by ing ab on Wed, 02/20/2019 - 03:23

Permalink

how can you made your esp8266

how can you made your esp8266 to connect to wifi

Submitted by jagadeesh kumar on Fri, 04/19/2019 - 21:16

Permalink

Hi everybody, i need urgent

Hi everybody, i need urgent help. My problem is After uploading the program if i open the serial monitor the following message will be displayed on the serial monitor.

AT+RST

OK ets Jan 8 1013,rst cause:2, boot mode:(3,0)

load 0x40100000,otail 0

chksum 0x63

load 0x3fge8,

tail 0

chkal

tail 0u

nez aM

-Thhnker Technology Co. Ltd/

ready

AT+CWS⸮TZ⸮e

C⸮j⸮L⸮AJ+CIFSR

+CIFSR:APHP,"192.168.4.1"

+CIFSR;APMAC,"82:7d:3a:4d:d3:AT+CIPMUlOL⸮$⸮D⸮m⸮H⸮AT+CIPSERVDR=1,80

OK

If i type the IP Address 192.168.4.1 on the browser. I get the following message

This site can’t be reached

192.168.4.1 took too long to respond.

Try:

Checking the connection

Checking the proxy and the firewall

Running Windows Network Diagnostics

ERR\_CONNECTION\_TIMED\_OUT

What might be the Problem ?.

Submitted by Riddhi on Tue, 11/12/2019 - 17:55

Permalink

Not getting output on my

Not getting output on my serial monitor ...tried every possible thing but still nothing on the serial monitor...Please help....

Submitted by shafaat ahmed on Wed, 12/11/2019 - 15:29

Permalink

purchase project

how can we purchase the IOT based air pollution monitoring project in this website

Submitted by gokaichange on Mon, 09/28/2020 - 01:14

Permalink

Hello eveyone

Hello eveyone

Iam getting error on Lcd and i don't know the procedure

can any one please provide me step by step instruction please.....

Brother/Sir Please guide me if you can

Iam in a hurry in completing project

Thank you

Submitted by gokaichange on Mon, 09/28/2020 - 01:16

Permalink

Brother iam not getting any

Brother iam not getting any output in my display or anything

please help me to fix it

please

Submitted by Mithilesh Pandey on Wed, 10/14/2020 - 10:45

Permalink

Project Description mismatch with diagram (Image)

Hello, Thanks for the nice project idea. I have noticed that you have mentioned that RX pin of the esp8266 to the pin 9 of Arduino, and TX Pin of ESP8266 to pin 10 of Arduino. However, in the diagram (Image) pin connections are alternate.

Please let me know if which statement to be considered? Thanks in advance.

Submitted by Vani Gaddam on Sun, 07/04/2021 - 11:29

Permalink

can u telll us how to

can u telll us how to calibrate the sensor? thanks in advance

Submitted by E.Z Hacks on Thu, 03/10/2022 - 16:43

Permalink

Good day sir, Can I replace

Good day sir, Can I replace the gas sensor with a dust sensor?

Submitted by Alok kumar on Thu, 05/04/2023 - 10:57

Permalink

Hi, I am trying this project…

Hi, I am trying this project for my IoT project. I have an issue with this line in your documentation: -

"Before uploading the code, make sure that you are connected to the Wi-Fi of your ESP8266 device."

How to connect esp8266 with Wi-Fi and use it in this project. Please suggest and give me a solution to this. I have to submit this project in 3 days.

Submitted by Matt on Fri, 06/09/2023 - 20:38

Permalink

Hello. I ma currently doing…

Hello.

I ma currently doing this same IoT project and is my first time working on something like this, so i don't know if it will be possible to get more explanation from you personally, or help me with the project you have already done.

Thanks

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